

Notice of Allowability

Application No.

09/965,005

Examiner

VAN H. NGUYEN

Applicant(s)

CRADDOCK ET AL.

Art Unit

2194

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant's amendments on 5/17/06.
2. ☒ The allowed claim(s) is/are 1-5, 8-15, 18, and 19 (now renumbered as 1-15).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☒ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER

EXAMINER'S AMENDMENT & REASONS FOR ALLOWANCE

I. EXAMINER'S AMENDMENT:

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with MR. FRANCIS LAMMES (Reg. No. 55, 353) on May 17, 2006.
3. **The application has been amended as follows:**

In the Claims:

(a) All previous copies of claims 1, 8, 11, 18, and 19 have been replaced with the following clean copy of claims 1, 8, 11, 18, and 19 as amended by the Examiner's amendment:

Claim 1. A method for partitioning a computer network end node, the method comprising:

virtualizing a plurality of network devices on a single multi-function chip by means of a combination of hardware and software to form virtual network devices;

virtualizing at least one router on the single multi-function chip by means of a combination of hardware and software to form a virtual router,

wherein the virtual router performs control-flow processing for the virtual network devices,

wherein the virtual router functions of destination lookup and packet forwarding are incurred only on control-flow processing, and

wherein the virtual network devices and the virtual router form a virtual subnet; and

registering the virtual subnet with a physical subnet,

wherein the physical subnet perceives the single multi-function chip as only a single router with multiple Host Channel Adapters residing behind the single router.

Claim 8. The method according to claim 1, wherein nodes in the physical subnet communicate with the virtual subnet through the virtual router.

Claim 11. A computer program product in a computer readable storage medium for use in a data processing system, for partitioning a computer network end node, the computer program product comprising:

instructions for virtualizing a plurality of network devices on a single multi-function chip to form virtual network devices;

instructions for virtualizing at least one router on the single multi-function chip to form a virtual router,

wherein the virtual router performs control-flow processing for the virtual network devices,

wherein the virtual router functions of destination lookup and packet forwarding are incurred only on control-flow processing, and

wherein the virtual network devices and the virtual router form a virtual subnet; and

instructions for registering the virtual subnet with a physical subnet,

wherein the physical subnet perceives the single multi-function chip as only a single router with multiple Host Channel Adapters residing behind the single router.

Claim 18. The computer program product according to claim 11, wherein nodes in the physical subnet communicate with the virtual subnet through the virtual router.

Claim 19. A system for partitioning a computer network end node, the system comprising:

a first virtualizing component which virtualizes a plurality of network devices on a single multi-function chip to form virtual network devices;

a second virtualizing component which virtualizes at least one router on the single multi-function chip to form a virtual router,

wherein the virtual router performs control-flow processing for the virtual network devices, and

wherein the virtual router functions of destination lookup and packet forwarding are incurred only on control-flow processing,

wherein the virtual network devices and the virtual router form a virtual subnet; and

a registering component which registers the virtual subnet with a physical subnet,

wherein the physical subnet perceives the single multi-function chip as only a single router with multiple Host Channel Adapters residing behind the single router.

(b) Claims 6, 7, 16, and 17 have been cancelled.

II. REASONS FOR ALLOWANCE:

1. The following is an examiner's statement of reasons for allowance:

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2. The prior art does not expressly teach or render obvious the invention as recited in amended independent claims 1, 11, and 19.
3. The claimed “*virtualizing a plurality of network devices on a single multi-function chip by means of a combination of hardware and software to form virtual network devices; and registering the virtual subnet with a physical subnet, wherein the physical subnet perceives the single multi-function chip as only a single router with multiple Host Channel Adapters residing behind the single router*”, when taken in the context of the claims as a whole, was not uncovered in the prior art teachings.
4. Nor were references uncovered that would have provided a basis of evidence for asserting a motivation that one of ordinary skill level in the art at the time the invention was made, knowing of a method for partitioning a computer network end node in this specific environment, would have integrated or modified to teach the method for partitioning a computer network end node including virtualizing a plurality of network devices on a single multi-function chip and the additional features as recited in the context of independent claims 1, 11, and 19.
5. Dependent claims are allowed as they depend upon allowable independent claims.
6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany

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the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

CONTACT INFORMATION

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VAN H. NGUYEN whose telephone number is (571) 272-3765. The examiner can normally be reached on Monday-Thursday from 8:30AM - 6:00PM. The examiner can also be reached on alternative Friday.
2. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WILLIAM THOMSON can be reached at (571) 272-3718.
3. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
4. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner for patents

P O Box 1450

Alexandria, VA 22313-1450

Van H. Nguyen

Patent Examiner- Art Unit 2194


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